IN THE SPECIFICATION

Please amend the following paragraphs as indicated:

[0004] Several known automatic telephone conversation systems include a natural language understanding system for utterance meaning detection. The natural language understanding system could consist of semantic lexicons, keyword lists and a parser for detecting the meanings represented by the keywords and their combinations. A conversation manager or controller, which is connected to one or a combination of these parsers, controls the conversation flow and communication channels to business servers. In response to the detected meanings, one or more deployment aspects of the conversation system, such as the natural language generation and TTS engine, may be invoked. A telephone conversation system with natural speech understanding capabilities is commonly referred to as a "mixed initiative" conversational system. This type of systems is considered as having advantages to menu-driven systems. Specifically, if the user's intention and indication is broad and comes in free order, building a menu system would be impractical, and it may be desirable to let the user speak freely rather than listening to a menu list.

[0005] Grammar acquisition and concept understanding are key components of mixed initiative conversation systems. There are several types of such systems but many of them suffer from serious shortcomings. A system that classifies concepts based on a keyword list (and their aliases) may be misled if the word is mis-recognized, for instance. A system that classifies the concepts based on pre-defined speech templates may not be reliable as people may speak under different situations, in different styles and specificities. A system that relies solely on a pre-defined grammar cannot account for false recognitions due to the non-robustness of rule-based

grammar parsing. Different noises such as mis-recognized words, re-phrasing, hesitation, false start, and filler words, for instance, could fail the parser. Also, a partial parse-based system relying on semantic rules for re-assembling the meaning of the complete sentence suffers from the lack of information for creating sufficient semantic rules.

[0018] Referring to FIG. 1, a fuzzy natural language concept system (FNCS) includes one or more lexical databases 410, 412, 414, installed on a computing device, and they can be accessed in either reading or writing mode by any of the software modules. Any lexical database that meets certain specifications may be used. An example of such types of lexical database is the semantic lexicon WordNet, which provides a hierarchical classification of the English vocabulary. An example of a speech corpus is ATIS, which contains over twelve thousand ~~of~~ transcribed utterances in the air travel information domain. The fuzzy natural speech concept system (FNCS) also comprises a fuzzy concept grammar database 416 containing the results of the concept grammar-learning module 420. There are no restrictions on the type of database to be used as a grammar database. A possible candidate of such types of database is a Prolog database, for instance, containing clauses describing fuzzy sets in which a concept may belong.